AI Overview

Apple rust is a fungal disease, most commonly known as cedar-apple rust, caused by the pathogen *Gymnosporangium juniperi-virginianae*. It requires two different host trees—an apple or crabapple and an Eastern red cedar or other juniper—to complete its life cycle.

How the disease works

- **On junipers:** The fungus forms reddish-brown galls (often called "cedar apples") on the twigs. In the spring, after rainfall, these galls swell and produce orange, gelatinous, horn-like protrusions. These horns release spores that are carried by the wind to nearby apple trees.
- **On apple trees:** Spores landing on apple leaves and fruit can cause an infection within a few hours under favorable conditions. The infection cycle then continues from the apple back to the juniper.

Symptoms on apple trees

- **Leaves:** Initially, small greenish-yellow spots appear on the upper surface of the leaves, which gradually enlarge and turn orange-yellow. Reddish concentric bands may form around the spots. By mid-to-late summer, small black dots appear within the spots on the upper leaf surface. On the underside of the leaves, finger-like fungal tubes (aecia) protrude from the leaf tissue.
- **Fruit:** Immature fruit can also become infected, showing slightly raised, orange-colored lesions that may crack as the fruit matures. The infection can cause the fruit to become malformed or stunted.
- **Overall health:** Repeated or severe infections can cause apple trees to defoliate prematurely, weaken the tree, and reduce fruit quality and yield.

Management and treatment

Preventative measures

- **Separate host trees:** The fungus needs both an apple and a juniper host. While spores can travel several miles, removing junipers in the immediate vicinity of an orchard can help reduce the severity of the disease.
- **Plant resistant varieties:** The most effective long-term strategy is to plant apple varieties that are resistant to rust. Before buying a tree, check if it is a disease-resistant cultivar.

- **Apply dormant sprays:** In late winter, you can apply a dormant oil spray to create a protective barrier that prevents spores from taking hold.
- **Timely cleanup:** Regularly clean up and dispose of any affected leaves or plant parts.

Active treatment

- **Fungicide application:** When the tree is budding and flowering in the spring, apply a suitable fungicide labeled for apple rust control. Products containing copper or sulfur are often used, but follow the label instructions carefully as some treatments can damage new foliage or fruit.
- **Remove galls:** If you have junipers on your property, you can remove the galls from the branches in early spring to prevent the release of spores.